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**INFLUENCE OF YTTRIUM ON THE CORROSION AND EROSION RESISTANCE OF THE WELDING METAL 07Kh19N11MZ IN THE CONDITIONS OF THE SULFATE DEPARTMENT OF COKE CHEMICAL PRODUCTION**

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*The work investigated the corrosion and erosion resistance of the deposited metal type 07X19H11M3 in the environments of the sulfate department of coke chemical production. It was shown that mother liquors containing sulfuric acid, ammonium sulfate and aggressive impurities (chlorides, rhodanides) are characterized by high corrosion activity and contribute to the development of localized forms of destruction, in particular pitting and intergranular corrosion. It was established that erosion wear is caused by the impact action of ammonium sulfate crystals and has a pronounced synergistic nature in combination with electrochemical processes of metal dissolution. A complex of gravimetric and electrochemical studies was carried out, including polarization measurements, as well as tests for corrosion and erosion wear in a jet stream, which simulates real operating conditions of the equipment. It is shown that microalloying with yttrium (0.002–0.003 wt. %) contributes to increasing the stability of the passive state, reducing the anodic current density, expanding the passivation region and leveling the electrochemical heterogeneity of welded joints. A decrease in the erosion wear rate by 35–45% compared to unmodified metal was established. Based on experimental data, the applicability of the Finnie and Oka models for quantitatively describing erosion failure in the studied conditions was confirmed. A decrease in the speed index (n) and model coefficients after microalloying was determined, which indicates a decrease in the sensitivity of the material to hydrodynamic factors and the abrasive action of particles. It is shown that the increase in corrosion and erosion resistance is due to the modification of the metal microstructure, stabilization and densification of passive films, a decrease in grain boundary defects and an increase in resistance to local plastic deformation. The feasibility of using micro–doped yttrium deposited materials to increase the service life and reliability of sulfate department equipment of coke–chemical enterprises is substantiated.*

Keywords: corrosion, erosion, sulfate department, deposited metal, yttrium, passive films, Finnie and Oka models.

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